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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,725

01/30/2006

John Biteau

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EXAMINER

PENG, KUO LIANG

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,725	<b>Applicant(s)</b> BITEAU ET AL.	
	<b>Examiner</b> Kuo-Liang Peng	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 2/15/07 IDS.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 44-106 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 44-106 is/are rejected.
- 7) ☒ Claim(s) 44-106 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/15/07</u> .   | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The Applicants' preliminary amendment filed January 30, 2006 is acknowledged. Claims 1-43 are deleted. Claims 44-106 are added.

#### ***Claim Objections***

2. Claims 44-106 are objected to because of the following informalities:

In Claims 44 (3<sup>rd</sup> line from bottom), 53-55 (1<sup>st</sup> line) and 82 (3<sup>rd</sup> line from bottom), should "I/I+II" be -- I/(I+II) --?

In Claim 47 (line 4), "BaTi<sub>4</sub>O<sub>9</sub>" is redundant.

In Claims 70 and 98 (last line), should "0.1 or 2" be -- 0, 1 or 2 -- as indicated in the specification (page 15, line 3)?

In Claim 73 (page 7, line 1), before "a group", should there be -- or --?

Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 47, 49, 58-59 and 82-106 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 47 (line 3), it is not clear as to what "CO<sub>3</sub>O<sub>4</sub>" refers to.

In Claims 58 (line 2) and 59 (line 1), it is not clear as to what "comprises only" refers to.

In Claim 82, the scope of layer LI is inconsistent with those in Claims 27 and 44 because the precursor compound (I) is not recited.

Claims 82 and 84-106 recite the limitation "precursor compound (I)" and "precursor compound (II)" in Claim 82. There are insufficient antecedent bases for these limitations in the claim.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 44-59, 61-80, 82-86 and 88-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya (US 2003 0087102).

For Claims 44-47, 49-59, 61-80, 82-86, and 88-106, Yamaya discloses process for manufacturing an article comprising a substrate **spin** coated with an anti-reflective stack comprising in sequence, a protective (i.e., **anti-abrasion**) layer, a **high refractive index** (HRI) layer and a **low refractive index** (LRI) layer on top of an **organic glass** substrate such polycarbonate, etc. ([0023]-[0028] and [0057]) The refractive indexes and thickness of the HRI layer and the LRI layer are described in [0088], [0096]-[0097] and [0171]. A **metal oxide sol** (e.g., ZnO, ZrO<sub>2</sub>, TiO<sub>2</sub>, SnO<sub>2</sub>, etc.) having specific particle size can be incorporated into the HRI layer. ([0089]-[0090]) The compositions (e.g., **epoxysilanes**, TiO<sub>2</sub>, ZrO<sub>2</sub>, **SiO<sub>2</sub>**, **aluminum acetylacetonate**, etc.) for preparing the HRI layers are further exemplified in Synthesis Examples. The LRI layers containing a silane having four hydrolyzable groups and silanes having fluorinated groups are described in [0097]-[0040] and further illustrated in Synthesis Examples. The theoretical dry extract of the fluorine in the LRI layer is also exemplified in Synthesis Examples. Yamaya is silent on the claimed relative molar amount or TDE (closely related to the relative molar amount) of the silane having four hydrolyable groups. However, the relative molar amount or the TDE of the silane having four hydrolyzable groups will affect

the properties of the layer, such as crosslinking density, harness and mar resistance of the LRI layer. ([0138]) In other words, the relative molar amount and TDE are Result-Effective variables. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the silane having four hydrolyzable groups in whatever relative molar amount or TDE through routine experimentation in order to afford a LRI layer with desired properties. Especially, Applicants do not show the criticality of the relative molar amount or the TDE of the silane having four hydrolyzable groups. See MPEP 2144.05 (II). For Claim 48, Yamaya is silent on the employment of titanium oxide in the form of rutile. Yamaya further discloses the use of the anti-reflective stack for coating **televisions**, etc. ([0004]) Furthermore, Examiner takes Official notice that an anti-fouling property for televisions is highly desirable, and titanium oxide in the form of rutile is known to impart anti-fouling property in a coating. Therefore, it would have been obvious to employ titanium oxide in the form of rutile in Yamaya's anti-reflective stack with expected success.

7. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya as applied to Claim 44 above, and further in view of Inukai (US 5 081 165).

The difference between Yamaya and the present invention is the requirement of an anti-fouling layer. Yamaya further discloses the use of the anti-reflective stack for coating **televisions**, etc. ([0004]) It is well known to coating an anti-fouling layer on televisions. For example, Inukai teaches anti-fouling layers are applied on **televisions**. The motivation is to impart anti-fouling properties to the televisions. Therefore, it would have been obvious to one of ordinary skill in the art to coat an anti-fouling layer on top of Yamaya's anti-reflective stack with predictable result/expected success.

8. Claims 60 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaya as applied to Claims 44 and 82 above, and further in view of Thelen (US 3 185 020).

The difference between Yamaya and the present invention is the requirement of a medium refractive index (MRI) layer between the substrate and the HRI layer. For Claim 87, Yamaya further discloses the use of the anti-reflective stack for coating **televisions**, etc. ([0004]) It is well known to coating an MRI layer on a substrate in addition to the HRI and LRI layers. For example, Thelen teaches coating a substrate such as **televisions**, etc. with an **MRI layer** in the manner set forth in the claimed invention. (Figure 1) The **motivations** are to reducing and

eliminating unwanted reflections, etc. (col. 1, lines 43-66) Therefore, it would have been obvious to one of ordinary skill in the art to incorporate an MRI layer in Yamaya's anti-reflective stack with expected success. Especially, Thelen is in the same field as that of Yamaya's endeavor in that both are trying to reduce/eliminate reflection on television displays. For Claim 60, Yamaya is silent on the specific claimed refractive index for the MRI layer. However, the refractive index of the MRI will, together with the refractive indexes of other layers, affect the efficiency/thickness of the anti-reflective stack to impart anti-reflection over a wide range of light wave length. (col. 1, line 40 to col. 3, line 16) In other words, the refractive index of the MRI layer is a Result-Effective variable. Therefore, it would have been obvious to one of ordinary skill in the art to utilize an MRI layer having whatever refractive index through routine experimentation in order to afford a stack with desired anti-reflection properties. Especially, Applicants do not show the criticality of the MRI layer's refractive index. See MPEP 2144.05 (II).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuo-Liang Peng whose telephone number is (571) 272-1091. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck, can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

klp  
July 3, 2008

/Kuo-Liang Peng/  
Primary Examiner, Art Unit 1796